

Discussion

Applicant's invention relates to an apparatus to sense continuously the angle of rotation of the steering wheel, in Claims 5 and 7, or the turning angle of the wheels, in Claims 6 and 7; to compare the angle to specific angles and pre-set specific minimum speeds as set forth in the Table on page 4 of the specification; and, if the angle is beyond the specific angle in the Table for the speed specified in the Table, to send a signal to the suspension system to reduce the rate of movement of the body toward the axle and, thus, to control tilting of the vehicle.

The Rejection

The Examiner states:

"It is notoriously old to stiffen or alter a shock absorber or suspension or plurality of such components in response to turning of wheels or steering wheel in order to prevent roll, pitch and yaw of the vehicle:

Reconsider the undue breadth of claims 3-7.

17. Claims 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Tokunaga et al. (4564214) or Tanaka et al. (4613154) or Kanai et al. (4616163) or Sugasaw (4652010).

See at least the Abstracts of the applied patents in order for applicant to better appreciate the scope of claims 3-7.

18. Claims 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al. (4697237) or Ikemoto et al. (4797823) or Yasuike et al. (4803627) or Ikemoto et al. (4807128) or Ikemoto et al. (4765649)."

Applicant agrees with the Examiner that using the suspension system in response to turning of wheels or rotation of the steering wheel in order to prevent roll, pitch and yaw of the vehicle is old. However, after reviewing the Abstracts of the applied patents in accordance with the Examiner's kind advice, Applicant has amended the claims to focus more clearly on Applicant's contribution to this field; and Applicant believes that his contribution departs significantly from the applied patents and constitutes a patentable invention.



It seems clear that Tokunaga et al. (4564214) does not relate steering angle to speed in the manner claimed by Applicant before changing suspension characteristics.

Tanaka et al. (4613514) discloses a system solely dependent on velocity for switching between hard and soft suspension states.

In Kanai et al. (4616163) there does not appear to be any input from the speed of the vehicle before applying a damping force or changing the spring constant of the suspension system to control rolling that is caused by a turn.

Sugasawa (4652010) checks the steering position periodically (not continuously) to derive a value for steering wheel acceleration which must exceed a threshold value before a high damping force mode is attained. Besides not operating continuously, it seems like a much more complicated arrangement than Applicant's claimed system for tilt control.

Tanaka et al. (4697237) also discloses a very complicated system to perform roll control involving four control signals. It involves a steering state detecting means and vehicle velocity means that must detect a factor that causes a roll state of the vehicle. Applicant, on the other hand, has provided a simple relationship between vehicle speed and angle of steering wheel rotation to signal the suspension system to act to prevent further tilting.

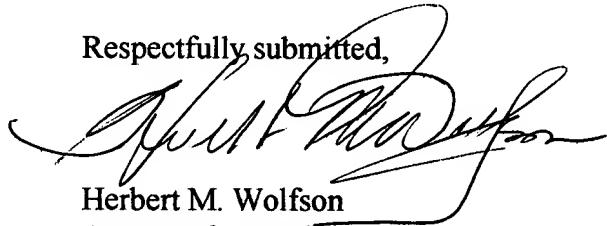
Ikemoto et al. (4797823) Yasuike et al. (4803627), Ikemoto et al. (4765649) seem to use complicated mechanisms for controlling the height of each of the four wheels of the vehicle for vehicle roll control. Ikemoto et al. (4807128), for example, employs four detecting means before any of the four height adjustment assemblies operate. The four detecting means include a speed detecting means, a steering angle detector, a rate of change of steering detector and a means for detecting the actual roll angle of the vehicle body. Applicant's claimed invention which does not rely on controlling the height of each of the wheels of the vehicles for roll control but utilizes a discovered relationship of speed and angle of steering wheel rotation or wheel turn angle to control tilt, and Applicant believes that his discovery constitutes a sufficient improvement to warrant a patent.

Applicant respectfully requests the withdrawal of the rejections based on these nine patents; and earnestly solicits the allowance of amended Claims 5, 6 and 7.

Applicant also wishes to acknowledge the allowability of the previously allowed Claims 1 and 2.

Two copies of a Petition To Extend Time of response to the Action of January 27, 1999 for a period of one (1) month to May 27, 1999 and a check for \$55.00 accompany this response.

Respectfully submitted,



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